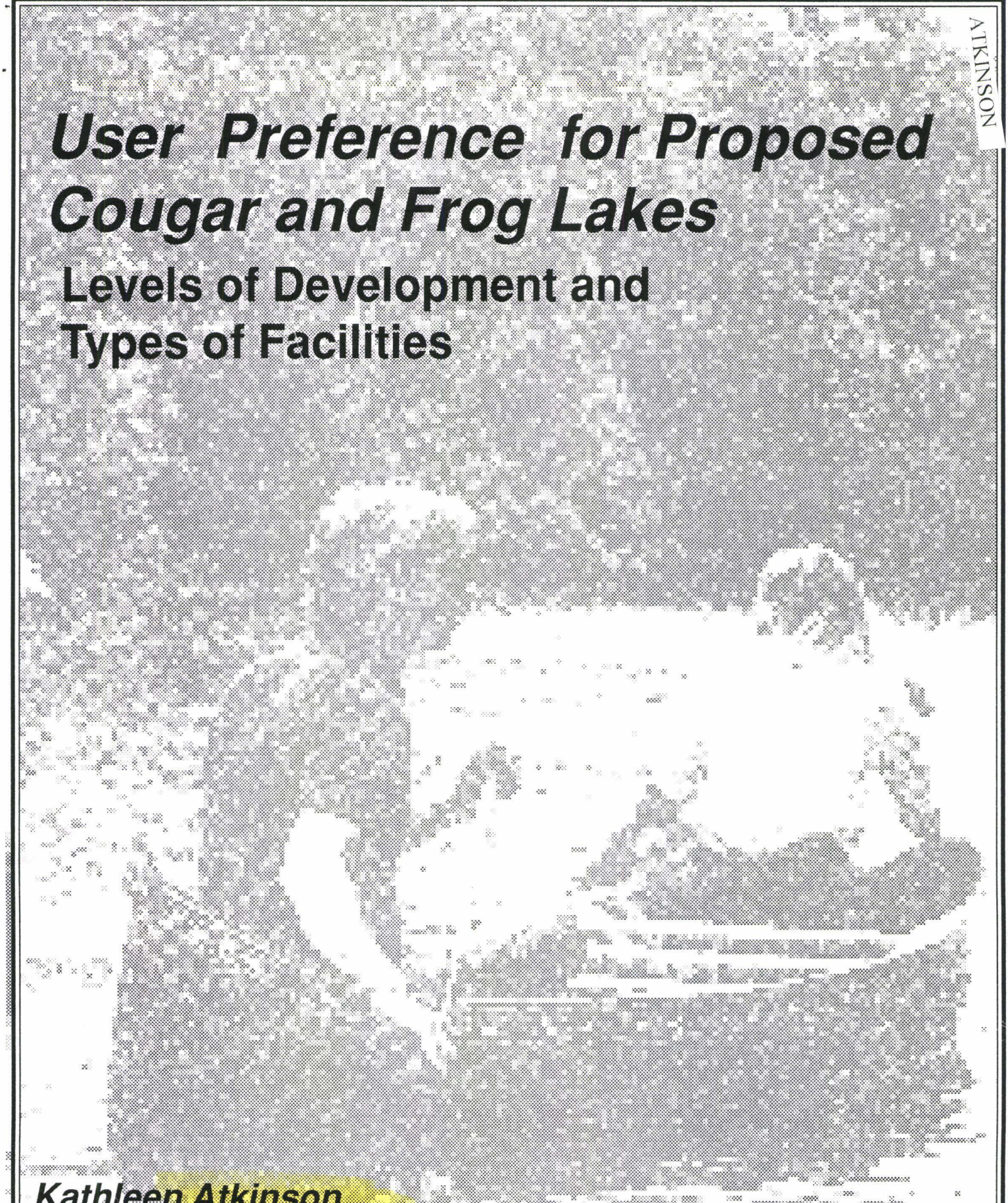
S950105

ATKINSON

User Preference for Proposed Cougar and Frog Lakes

Levels of Development and Types of Facilities



Kathleen Atkinson
Recreation Planner
Kaibab National Forest

CLASS OF 1992

INTRODUCTION

Area Background

The Kaibab National Forest is located in northern Arizona, and is composed of four ranger districts. The forest is physically divided by Grand Canyon National Park, with one district on the north side of the park, and three districts on the south side of the park. The City of Williams serves as the administrative headquarters for the Forest Supervisor's Office, as well as both the Chalender and Williams Ranger Districts. The City of Williams is located 60 miles south of Grand Canyon National Park and 30 miles west of Flagstaff.

There are no live perennial streams or natural lakes occurring on any of the ranger districts south of the Grand Canyon. There are four man-made lakes ranging in size from 35 to 80 surface acres. All of these lakes have campgrounds. There are several smaller man-made ponds, none of which have camping facilities. Recreation use associated with the limited water features is popular both with local residents and people from the Phoenix metropolitan area. Phoenix residents travel to the high country lakes of the Williams area to escape the desert heat during the summer.

The economy of the City of Williams is based on tourism. The potential impact of an additional lake and related recreational facility on the local economy is significant.

Statement of Purpose

The Kaibab National Forest is planning to propose the construction of a recreational lake by building a dam and collecting surface water run-off. This proposal would also include associated recreation facilities. While water rights are not yet secured, it appears there are several feasible options which may solve the water rights problem. The lake would be between 100-120 acres in size, which is large enough to accommodate substantial development, if so desired.

Before beginning the NEPA process, the forest needs to develop a proposal for the recreation developments associated with the lake. This will need to include the scale of development (substantial area devoted to development vs limited area of development), as well as level of facilities to be provided (cabins vs primitive campsites, amenities such as a store, showers and marina vs a more primitive environment, etc). After water rights are obtained and the proposal is generated, extensive public involvement would begin, followed by an environmental analysis.

Management area 22 in the Kaibab Forest Plan (USDA Forest Service, 1988, pg 193) provides direction for Proposed Recreation Development Sites. Specifically addressed in this management area is Adams Dam and campground (another name for Cougar Dam and campground). The plan called for evaluation of an 80 site campground with a water system, boat ramp, parking for day use, toilets and interior roads. Plan amendment #1, signed in April 1989, deleted the reference to specific facilities and said to "Prepare site concept and design plans for a recreation development site in conjunction with the construction of Adams Dam." It also called for public involvement of all interested and affected parties.

There are innumerable alternatives that could be developed spanning the range of development levels. Actual alternatives will be developed during the NEPA process, based on public comment. However, to begin the process the forest needs a proposal. Typically, a proposal is generated internally without much public involvement. The majority of public involvment occurs when alternatives are developed. In this case the project presented in this paper will provide the forest with an indication of what some user groups prefer. The data from this project will then be used by recreation staff on the Kaibab National Forest to shape the proposal. It can also be viewed as initiating public involvement for the environmental analysis.

LITERATURE REVIEW

The literature was reviewed to obtain results of related projects. Findings are grouped into the following sections: Popularity of Water-Related Recreation Activities, Unmet Demands for Water-Related Recreation, Previous Studies of Desired Development Levels at Lakes, and Factors Affecting Water-Related Recreation.

Popularity of Water-Related Recreation Activities

People enjoy water-based recreation. "Almost half of the national population prefers water-based activities to any other type of outdoor recreation." (Douglass, 1978, pg 243). The Arizona Outdoor Recreation Needs Survey shows that water-based recreation areas are the third most visited type of outdoor recreation areas in Arizona (although they are the second most preferred areas to visit). In 1991, 64.8% of Arizona residents visited a water-based recreation area (Virden and Yoshioka, 1992, pg 1-2). In our arid state, this is significant. Another study by the Northern Arizona Council of Governments (1993, pg 18) showed visits to water-based recreation areas in northern Arizona increased 123% from 1980 to 1988.

Water-based recreation is especially popular with tourists. The Arizona Rivers, Streams, & Wetlands Study, completed in 1988, found that: "fifteen million tourists visit Arizona annually; water-based recreation is a major component of the tourist industry; and tourism generates over five billion dollars of income annually, which is the second largest source of income in Arizona." (SCORP, 1989, pg 68).

The Arizona Lake Study documents the desire people have to recreate near lakes and bodies of water. This is increasing the demand for lake recreation, which in turn is leading to overuse. "Many existing water-based recreation areas attract huge crowds and are frequently utilized to or beyond capacity" (Arizona State Parks, 1989, pg 27).

The remainder of this section is split into three parts: boating, fishing, and camping and picnicking.

Boating

The latest Statewide Comprehensive Outdoor Recreation Plan (SCORP) completed for the state of Arizona found a large demand for boating opportunities. Of the recreational activities surveyed, "The participation rate for motorboating/water skiing or jet skiing far exceeded that of any other watercraft activity. Over 27 percent of the population participated in motorboat-related watercraft activities in the previous 12 months." Boaters are heavily dependent on public facilities, as evidenced by "approximately 63 percent of the self-proclaimed enthusiasts use only facilities provided by federal, state, and local entities." (SCORP, 1989, pg 100).

The demand for motorboat recreation opportunities is growing. Since 1976, there has been a significant increase in the motorboat participation rate by Arizona residents (SCORP, 1989, pg 102). "The number of boats registered in Arizona has more than tripled since 1969. Resident boats were on the water for nearly 1.3 million days on Arizona's waterways, and an additional 234,000 boat days were added by Californians, Nevadans, and other non-residents. All this accounts for nearly 5.5 million boating recreation days. If the historical trends continues, there

could be twice the current number of registered boats by 2012" (SCORP, 1989, pg 89). "The level of boat ownership is striking when one takes into account the relative shortage of boatable waters in the state" (SCORP, 1989, pg 125).

Data on boat use in Arizona collected from March 1990 to February 1991 by the Behavior Research Center (1991, pg 34) show total boat use days on Arizona waterways during that period to be 3,542,260. Arizona boaters account for 50.4% of the total, and California boaters account for 44%. This data shows the extreme impact California boaters have on Arizona waterways.

The proposed project is located in Coconino County, which has the third most boat-use days by county in the state, and the fourth most person-use days (Behavior Research Center, 1991, pg 32). Of the lakes on the Kaibab National Forest, use was ranked in the following order (pg 37-8):

Lake	*Boat Use Days*	*Person Use Days*	*Ranking of Most Used Lakes in Arizona*
Cataract Lake	12,553	25,106	25th
Kaibab Lake	2,201	6,603	44th
Whitehorse Lake	384	2,304	66th

- Data for Dogtown Lake not available

It is interesting to note that there was no use by California or Nevada registered boats during the time frame surveyed for these lakes. This could be because the lakes are small (ranging from 35 to 80 acres) and therefore do not attract users from long distances. A new lake, at 100-120 acres, would probably also only be used by Arizona residents, based on this data.

There is a significance to whether a boat is used by an Arizona or out-of-state boater. The primary activities engaged in by Arizona and California boaters differ. Among Arizona boaters, boat fishing is the number one activity. California boaters rank it sixth. When asked to indicate the one activity most frequently participated in during boating trips, Arizonans indicated (depending on the season of the year) boat fishing 47-50% of the time, compared to 13-16% of Californians. Water skiing and jet skiing are very popular among California boaters. The percentage of Californians who responded that they most frequently water skied was 37-32%, compared to 20-16% for Arizonans (Behavior Research Center, 1991, pg 73). Again, since these lakes are likely to be used only by Arizona residents, boat fishing could be a very important use.

While most of the boat use in Arizona is motorboats, there is a growing interest in canoeing. Between 1980-6, the number of people participating in canoeing increased 57% (Arizona State Parks, Rivers, Streams and Wetlands Study, 1989, pg 89).

Fishing

Fishing is another very popular water-related recreational activity. "Approximately 33 percent of Arizonans participated in fishing...at least once the previous 12 months. As with boating, anglers are heavily dependent on public facilities. Approximately two-thirds of the [fishing] enthusiasts use public facilities and areas for these activities 70 percent or more of the time they engage in the activities" (SCORP, 1989, pg 104).

The number of anglers is increasing. "The '1985 National Survey' indicates a 3.4% increase in the number of licensed and nonlicensed Arizona anglers to about 519,000 people. Fishing licenses sales indicate strong growth, keeping pace with Arizona's population over the past 25 years" (SCORP, 1989, pg 88-89). By the year 2000, it is expected there will be 720,000 anglers (SCORP, 1989, pg 92).

Substantial revenue is generated by anglers. In 1970, the value of cold water fishing alone was $30 million (Potter, 1984, pg 34-5). This equates to $50.13/trip. In 1986, "over $326 million was spent on fishing in Arizona" (SCORP, 1989, pg 87). This figure will increase as more people participate in fishing activities.

Camping and Picnicking

Camping and picnicking by water is another aspect of water-based recreation. "In U.S. Forest Service campgrounds, camping sites near water consistently show the highest use, particularly by tent campers. During the 1983-1986 period, water sites showed 44 percent greater use by auto campers and 207 percent greater use by tent campers, than non-water sites. And in 1985-86, the top three revenue-generating state parks were those with lakes" (SCORP, 1989, pg 156). Other studies, such as that by Cordell and Sykes (1969), suggest that campground users and picnickers often prefer sites located close to water or with a view of water.

As defined by Kaplan, campers and picnickers are passive users of lakes. Kaplan (1977, pg 285) states "The truth is that much of the enjoyment that waterscapes provide is low in action. Countless river users are uncounted nonusers. They are not 'in the water' but 'at the water'." This passive use is just as important as active use.

Unmet Demands for Water-Related Recreation

As shown in the previous section, the demand for water-related recreation opportunities is rapidly growing. However, while facilities such as ramps and restrooms at existing lakes have been added, no major lakes have been built in some time. According to the Arizona Lake Study (State Parks, 1989, pg 46), "While additional supply of large lakes is probably not a reality, affected agencies should encourage the development of public access on private lake developments...in order to expand the supply of opportunities."

No major (100 acres or more) lakes are currently being planned in Arizona by any agencies other than the Forest Service. The Bureau of Reclamation, which built many of the large lakes in Arizona, is under pressure to not dam any more rivers. "Continued opposition to expensive western water projects and the apparently reduced need for additional large reclamation projects is threatening the continued activity of the

Bureau of Reclamation in Arizona. If the Bureau were to discontinue its traditional role in providing additional lakes, pressures on existing water features would greatly intensify" (SCORP, 1989, pg 156).

Recreational reservoirs have been considered for various other locations throughout the state at different times. The Northern Arizona Council of Governments conducted a study (1974) to assess the potential for a recreation related reservoir in the Fredonia area, north of the Grand Canyon. Thirteen sites were selected as potential reservoir locations. Seven were selected for further engineering studies, and the two most promising were selected for reservoir design studies. Facilities recommended included: a beach, boat ramps and docks, a campground, store and trails. One of the sites resulted in a 60 acre lake, the other an 84 acre lake.

It was estimated that an additional 100 people per day would travel through Fredonia because of a reservoir. This was further estimated to potentially result in $105,000-225,000 of increased local revenue each year (1974 dollars). The benefit cost ratio was projected at 2.099. However, no reservoir was ever built due to potential siltation problems.

A survey was conducted by Virden and Yoshioka (1992, pg 43) to determine what recreational activities people wanted to participate in more often. Of the 42 outdoor recreation activities surveyed, the greatest unmet demand was for fishing in a natural setting. In the ranking of unmet needs, picnicking was second, tent camping was fourth, RV camping was tenth and motorboating was nineteenth.

The most commonly cited barriers to participating in these activities are:

Activity	***Barriers***
Motorboating	Too crowded Not enough time Don't have the right equipment
Fishing	Not enough time, Recreation areas too far away Don't know where to go
Tent camping	Not enough time Too crowded Recreation areas too far away
RV camping	Not enough time Too expensive Too crowded

The most often cited barrier for all these activities was not having enough time. This factor is beyond the scope of this report, and will not be examined. The next most commonly cited barrier was sites being too crowded. As the population of the state increases, this barrier is going to become more and more of a constraint on where people go to recreate. In some cases, this will result in limitations on the number of people or boats able to use a particular site. One way to address this barrier is to expand recreational opportunities to accommodate the increased use, possibly through a new lake.

A trend analysis conducted by Arizona State Parks in their 1992 Arizona State Lake Improvement Fund Futures Assessment workshop concluded:

1 Carrying capacity of the resources are close to saturation.
2 People are demanding more amenities.
3 The lakes are overcrowded.

A nation-wide study by Market Opinion Research (1986) asked "How important are each of the following in your decision to choose a particular park, beach or outdoor recreation area?" The results, ranked from most important to least, are:

1	Natural beauty	6	Picnic areas
2	How crowded it is	7	Cultural events
3	Restroom facilities	8	Fees charged
4	Parking available	9	Concessions
5	Available information	10	Organized sports available

11 Guided activities

The results of this study further emphasis the impact crowding has on choice of recreation sites.

Previous Studies of Desired Development Levels at Lakes

In addition to a literature review concerning the need for lake-related recreational opportunities, a review was also conducted to examine previous cases of public involvement in facility choice. While no studies exactly match this situation, there are some cases documenting public involvement in water-based recreation developments.

The 1991 Arizona watercraft survey asked boaters on Arizona waterways what additional facilities they would like to see at the lake they most often frequent. The results are listed below, broken down by state of residence. For comparison purposes, the results of a similar study in 1988 and 1985 are listed (Arizona State Parks, 1991, Appendix H).

Percentage (%) of boaters indicating the need for more facilities:

Facilities	1991	Ariz.	Calif.	1988	1985
Trash containers accessible by boat	59%	57%	63%	33%	0%
Courtesy docks	54	53	57	39	49
Picnic areas accessible by boat only	51	49	51		41
Drinking water	49	51	37	40	61
Launch ramps	48	48	40	38	
Parking for boat trailers	48	48	42	46	54
Restrooms	48	47	50	35	
Campsites accessible by boat only	47	46	49	31	43
Parking for cars	42	42	33	45	53
Fish cleaning stations	37	43	23		
Campgrounds	37	37	34		47
Sanitary dump stations	37	38	30		41
Full service marinas	37	34	45	29	
First Aid stations	34	31	47		36
Boat gas dock	33	30	40		
Picnic area	32	32	29		37
Swimming beaches	32	29	32		
Paved access roads	30	29	29	30	
Concession	29	29	29		

For the majority of items, the responses from Arizona and California residents were similar. The exceptions to this were drinking water, car parking and fish cleaning stations, all of which Arizona residents desired more than Californians. In the areas of full service marinas, first aid stations and boat gas docks, more Californians than Arizonans felt there was a need to increase the amount of these facilities. All respondents in general, and Arizona residents in particular, showed a desire to have more of the basic facilities (trash containers, docks, picnic areas and drinking water) as opposed to more developed facilities (concessions, gas dock, full service marinas and dump stations).

Arizona State Parks held a futuring session in 1992 to consider boating issues and needs. The results of this session listed several areas that need more attention. These include:

1. Facilities to provide resource protection (such as directing or dispersing use, hardening sites, etc).
2. Facilities to separate conflicting uses.
3. Trends need to be factored into planning. These trends include increased demand for RV facilities, group use areas, and boat access only camping.
4. Fully accessible facilities.
5. The continuing need for roads/access, parking, fish cleaning stations, dispersed ramps and docks, and special events/club facilities.
6. Land acquisition.
7. Basic vs. upgraded facilities - trend seems to be towards more upgraded facilities.
8. Commercial rafters facilities.

Some of these trends, such as the increased demand for boat access only camping, have been building for many years (Kight, 1979, pg 4). Other trends, such as the need for more fish cleaning stations, are not supported by other sources (Forbis, 1991, pg 362).

The Forest Service recently invited public comment on the rehabilitation of White Horse Lake Campground, which is a 35 acre man-made lake and campground. This campground is located on the Kaibab National Forest, near the location of the proposed lakes. During the public involvement process, there was a wide range of responses received concerning level of development (USDA Forest Service, 1992). Some people wanted highly developed facilities, such as rental cabins, a store, and boat rentals. Others felt the site was over-developed. However, most of the people expressing dissatisfaction with the current site complained about the poor quality facilities, not about the presence or absence of the facilities themselves. Also, the store seemed to be a facility many people endorsed. However, this situation can not be directly extrapolated to a new lake. White Horse Lake's small size can not support extensive development. Because of this, facilities which may be proposed for the new lake (marina, electrical hook-ups, etc) would not be appropriate at White Horse Lake.

Wise (1975, pg 57) surveyed campground users to determine their desires for more or less facilities:

Percent desiring more facilities

Public telephones	76.3%	Campsite trash cans	52.6%
Restrooms	70.2	Restaurant	49.5
Picnic areas	62.9	RV spaces	48.8
Boat ramp trash cans	62.3	Gas station	45.7
Playgrounds	61.0	Dump station	45.3
Developed campsites	60.0	Marina facilities	41.1
Public beaches	58.1	Campsite parking	41.1
Rental cabins	57.4	Boat rentals	38.8
Signs	57.2	Boat launch ramps	38.6
Grocery store	56.4	Sporting goods store	35.8
Swimming area trash cans	56.4	Motels	27.0
Boat ramp parking	53.0	Houses	13.8

The percentages of people responding favorably to more amenities in Wise's survey is much higher than in the Arizona SCORP. The fact that this survey was conducted some time ago, before more facilities were added to many lakes may explain the discrepancy.

King (1970, pg 116-17) conducted a large survey of campground users and managers to determine preference for different facilities. This survey asked if more priority should be given to development of campgrounds with modern conveniences and services than to primitive or undeveloped camping areas. The responses to this question were mixed. Statistically it came close to agreement, but there were enough negative responses for King to classify it as indecision.

In order to determine the minimum facilities and equipment for the modern and well-developed campground, users were asked to agree or disagree with a set of facilities. The results, in order of highest to lowest levels of agreement, were:

Agreement

Improved graveled circulation roads
Running water under pressure
Modern comfort stations with flush toilets
Dump station

Indecision

Recreation playfield
Hot showers
Shelter house
Playground apparatus

Disagreement

Washing machines
Clothes drying yard

Munson (1968, pg 71) did a survey of both providers and users of lake oriented recreation in Arkansas. He found that "users showed low agreement in their evaluation of a reservoir for recreational use." Providers of recreation were slightly more uniform in their agreement of what constitutes a quality recreation facility. Four factors emerged as indicators of site quality:

1 Water quality
2 Physical surroundings
3 Mix of facilities
4 Usable space/level of crowding

Factors Affecting Water-Related Recreation

Several studies show facilities are not a major factor influencing recreation site selection (McEwen and Paterson, 1986). People instead choose recreation sites based on other factors, such as distance from home, cost, aesthetics, etc. In general, when planning for reservoir use and facilities, the most important variable is distance of the reservoir from a population center. "This factor was here, as in most studies of such behavior, the most important single determinant of use" (Knetsch, 1974, pg 37).

Another study which reached much the same conclusion was Field and Cheek (1974). Their study of participation in water-based recreation found that "human activity observed was not related to or dependent upon the recreational activity for which the area might have been designed." This finding has important conclusions for recreation managers. The recreation planner might design facilities based on an expectation of what the public wants. The visiting public might define the desired recreation experience differently, and thus not use the facilities. As McCool (1978, pg 171) states, public "participation in certain activity packages may be unanticipated. In a sense, a single resource becomes several recreational 'places' because of the varying visitor definitions of the resource. In certain situations, these activity packages could conflict with the major recreation opportunity objectives established for the development."

Another finding from the McCool study (1978, pg 168-9) was that residents and non-residents use recreational sites in a different manner (in this study, non-resident was defined as someone who lived outside the state). Residents were found to use recreation sites as places for activities "characterized by the quest for trophies extracted from the natural environment" and "those not requiring use of a forest setting and which, in fact, sometimes interfere with other activities at the same site." These can be defined as fishing, hunting, trail biking, motorcycling, swimming, boating, and horseback riding.

Non-residents were more likely to use recreational sites as places for activities "directed towards appreciation of features of the natural environment" and "learning activities, such as nature study, hearing nature talks and visiting exhibits." These can be further defined as sightseeing, hiking, backpacking, photography, visiting historic sites, and interpretive trail hikes.

Management programs directed towards providing opportunities for activities which residents favor are more capital intensive (boat ramps, beaches, etc.) than the facility requirement for non-resident opportunities (trails and interpretive opportunities). Visitor contact programs also have a different emphasis. Facilities for residents require more rules, enforcement and supervision. The visitor contact program for non-residents would be geared more towards information. Knowing this, a recreation manager should closely study her user population in order to best allocate both facilities and personnel.

Another factor affecting water-based recreation use is regulation. Wilson (1964, pg 16) recommends some sort of control measures for motor boats on lakes 50-200 acres in size. "Most of the damage done to shore lines through erosion and to docks, marinas, anchored boats, fish spawning beds and surface vegetation is created by wakes." This is especially true on smaller lakes, where waves don't have time to dissipate before reaching the shore. This control can either be in the form of a motor size limit or no wake zones. Since the proposed lake would be under this recommended size limit, control methods should be considered. This would, however, also affect the type of recreation offered, such as eliminating water skiing.

Another reason to consider some control measures is safety. At Lake Powell, located 150 miles north of Williams, there are documented cases of near-miss collisions from boaters, jet skiers and swimmers using the same area (US Park Service, 1998, pg 4-5). In addition to the problems in the water, an unplanned facility can cause problems on land. Allowing dispersed camping and off-road vehicle use anywhere can lead to problems with erosion, trash, human waste disposal, vegetation damage, and damage to cultural resources.

METHODOLOGY

The nominal group technique (explained in greater detail later in this section) was used to assess public opinion regarding levels of recreation development at the proposed lake. The district NEPA mailing list was used to select groups. The district list was cross-checked against both the forest-wide mailing list and the adjoining district's mailing list to ensure groups and organizations were not overlooked. In addition, a listing of groups and clubs in Flagstaff (obtained from the Flagstaff Chamber of Commerce) was checked, as well as a listing of outdoor oriented groups in Arizona Great Outdoors (published by Arizona State Parks).

Thirty-four organizations were contacted and asked to participate (see listing in Appendix A). Each organization was sent an invitation to participate, and this was followed up with a phone call. All groups received a general description of the potential lake sites. They were asked to prioritize the scale of development and the level of facilities their group/organization would like to see at the lake. One representative from each group was asked to attend a meeting to talk about desired types of facilities and priorities. Two meetings were held; one in Williams for the groups in northern Arizona, and one in Phoenix for those in southern Arizona. The nominal group technique was used at those meetings to generate one consolidated, prioritized list addressing scale of development and level of facilities. The lists were then compared and consolidated into one.

The decision to hold a meeting in southern Arizona was based on data that shows substantial use of campgrounds in northern Arizona by southern Arizona residents. According to Richards and Brown (1992, pg 11), 58% of the use at White Horse Lake Campground comes from the greater Phoenix and Prescott areas. Fifty-four percent of the Dogtown Lake Campground users and 57% of the Kaibab Lake Campground users come from Phoenix, Prescott, Kingman and Bullhead City. User groups in Prescott and the surrounding area were invited to the meeting in northern Arizona. A separate meeting for the Prescott area was considered, but it was decided there were not sufficient groups to warrant conducting a separate meeting.

The results of this project reflect only the desires of those groups and organizations which participated. A wide range of groups was contacted to capture a diversity of opinion. Some groups chose not to participate. Each group that did participate represents the desires of the larger group membership. Individuals were not included in this project; they will be included later in the general public involvement process.

The nominal group process, as described in Stech and Ratliffe (1979, pg 169-173) is:

1 The group leader presents the statement/problem.
2 Each person/organization writes down ideas, solutions and options without group discussion.
3 Each person presents to the group one of their ideas. The entire group is canvassed in round-robin fashion, until each individual has had the opportunity to present all their ideas.
4 Anyone may ask for clarification. However, no evaluation of ideas is allowed.
5 Each person ranks the groups ideas privately. The results are tallied to determine relative support by the group for each idea.

Because debate, discussion and disagreement are discouraged, the nominal group technique does not emphasis consensus. Instead this technique relies on private rankings, and results in an averaging effect for the final ranking. It does permit a high degree of social and emotional involvement in the process.

The version of the nominal group technique used here combines an element of the Delphi technique. The Delphi technique is similar to nominal group, except that rather than generating solutions and ranking ideas in a group meeting, these steps take place individually. Individuals send written solutions to the group leader, who then combines them into one listing and sends them back to the individuals for ranking. After the individuals rank the solutions, they send them back to the group leader again, who compiles them. The disadvantages of the Delphi method are that individuals can easily drop out of the process, or slow the process by delaying sending back their answers. The main advantage is that written solutions tend to be more thought out and clear. It also prevents prejudice against solutions based on who can up with that particular idea.

By requesting that participating organizations and groups to come to the meeting with ideas already generated, it was possible to combine one of the advantages of the Delphi technique with the nominal group technique.

In a publication by Brooks (1991, pg 27), the Tennessee Valley Authority (TVA) documented how it involved the public in the decision making process by holding one-on-one interviews with interested citizens. It was concluded that this system was more conducive to honest exchanges, since many people are hesitant to speak up in public meetings. This problem was avoided in this study by keeping the size of the groups small.

A goal of this study was to reach a wide range of user groups. This includes the passive users, such as hikers and campers. Kaplan (1977, pg 288) said "we must be sure that the various kinds of 'users' are considered in public involvement." This study attempted to address this problem by inviting a diverse group to participate in the process.

ANALYSIS

Twelve people representing six organizations attended the meeting in Williams (see listing of groups in Appendix B). In most cases, more than one person from each organization attended. All people contributed to the round-robin discussion of desired facilities. All present were allowed to vote; however, votes were tabulated based on one response per organization (responses were averaged within each organization). These results are displayed in Table 1 below.

Table 1 Results of Williams Meeting

Rank Based on 1 Vote Per Organization	Development
1	Natural fisheries (no fishing docks, piers, etc)
2	Boating (all types, includes launch ramp and dock)
3	Traditional fisheries (tie)
3	Marina (tie)
4	Shoreline retention **
5	Limited roads around the lake
6	Day use only (no campground)
7	Potable water (tie)
7	Swimming (tie)
8	Lake habitat zoning *
9	Primitive camping (traditional Forest Service campground)
10	No concession (specifically no store)
11	No lake or recreation facilities
12	Regulated fisheries (no bait, strict size limits)
13	Picnic area
14	Fully accessible fishing pier
15	RV hook-ups

** Shoreline retention - leaving the shoreline as natural as possible, and placing facilities back from the edge of the lake.

* Lake habitat zoning - reserving a portion of the lake or shoreline for wildlife; perhaps discouraging fishing or hiking around this particular portion of the lake.

As Table 1 shows, there is a desire for fishing and boating opportunities. In addition, there seems to be agreement that any facility should be at the more rustic or primitive end of the spectrum. There was a small turnout for the meeting (predicted poor weather was probably a contributing factor). However, each organization present represents the entire membership of that group. Therefore, each organization that did attend represents anywhere from 20-100+ individuals.

The campground owners felt strongly that a new campground would compete with existing private campgrounds. The owners were opposed to the creation of any new large lake and associated recreational developments on this basis. Whether this claim can be substantiated cannot be answered at this time. If a proposal is generated and the environmental analysis proceeds, this question will be answered when the social effects of the proposal are studied.

The no concession idea was voiced by the City of Williams Parks and Recreation Commission. The rationale is that the campground would be located near Williams, and by not having a concession, campers would have to buy supplies in town.

Ten people representing four organizations attended the meeting in Phoenix (see listing of groups in Appendix B). In most cases, more than one person from each organization attended. All people contributed to the round-robin discussion of desired facilities. All present were allowed to vote; however, each organization's votes were averaged resulting in one response per organization. These results are displayed in Table 2.

Table 2 Results of Phoenix Meeting

Rank Based on 1 Vote Per Organization	**Development**
1	Traditional, level campsites
2	Good gravel access road
3	Potable water
4	Toilets
5	Hiking trails
6	Shade trees
7	Trash cans
8	Group sites
9	Grills or fire rings
10	Tables
11	Rustic atmosphere
12	Picnic area
13	Shoreline retention
14	Ability to place tents on all sites (not separated from other campers)
15	Ramadas
16	Boat ramp
17	Traditional fisheries (tie)
17	Fish cleaning station (tie)
18	Fully accessible fishing pier
19	Gravel pads
20	Boat docks
21	Playground
22	Well-signed regulations (tie)
22	Dump station (tie)
23	Amphitheater for interpretive programs
24	Solar light for toilet

As Table 2 shows, the emphasis of this meeting revolved around rustic camping, providing picnic areas, and the availability of hiking trails. Group camping was also highly ranked. There was agreement that all facilities should be at the more rustic or primitive end of the spectrum.

Not included in these results is the input by the Skyliner Hiking Club and American Fisheries Society. These organizations were unable to attend the group meeting, but did submit comments. The Skyliner Hiking Club comments were to keep the campground and picnic facilities simple - no concession/store, flush toilets or showers. They felt the shoreline should be protected, perhaps with a 1/4 mile buffer with no development. The American Fisheries Society responded that facilities should be basic and the overall atmosphere rustic. While these comments are not reflected in the table above, they are consistent with the comments submitted by the other groups.

There are a number of similarities between the results of the two different meetings. Rustic or natural-appearing facilities were a high priority with both groups. Boating facilities (launch ramp and docks) as well as a fisheries were desired by both groups. However, there were differences between the two groups as well. The northern Arizona group was less supportive of a campground than the southern Arizona group, and placed more emphasis on fisheries. The southern Arizona group focused more on camping facilities and hiking trails.

The results of each meeting were then combined into one prioritized listing. The combined results of the two meetings are shown in Table 3.

Table 3 Combined Results of Both Meetings

Rank	Raw Score	Development
1	15.6	Potable water
2	15.3	Traditional level campsites
3	13.0	Shoreline retention
4	12.6	Boat ramp
5	12.1	Traditional fisheries
6	11.5	Boat dock
7	10.5	Good gravel access road
8	10.3	Toilets
9	9.8	Picnic area
10	8.5	Hiking trails
11	8.0	Shade trees
12	7.8	Trash cans
13	7.6	Group sites
14	7.3	Grills or fire rings
15	7.2	Tables
16	7.1	Natural fisheries (tie)
16	7.1	Rustic atmosphere (tie)
17	6.6	Fully accessible fishing pier
18	6.4	Marina
19	6.3	Ability to put tents on all sites
20	6.2	Limited roads around lake
21	5.8	Ramadas
22	5.6	Fish cleaning station
23	5.3	Day use only (no campground)
24	5.2	Swimming
25	4.8	Lake zoning
26	4.7	Gravel pads
27	4.4	Playground
28	3.8	No concession
29	3.5	No lake or recreational facilities
30	3.2	Regulated fisheries (no bait, strict size limits)
31	2.7	Dump Station (tie)
31	2.7	Well-signed regulations (tie)
32	2.4	Amphitheater for interpretive programs
33	1.1	RV hook-ups
34	.7	Solar light for toilet

The combined results show an emphasis on traditional, rustic Forest Service camping facilities and simple fisheries. A recreational lake, as envisioned by the top 20 items listed by the group participants, would include a campground with rustic sites (no hook-ups), potable water, toilets, tables and fire rings. There

would be a boat ramp, dock, and accessible fishing pier. The lake would be stocked with fish. There would also be a picnic area, group use area and hiking trails nearby. The setting would be rustic. Possibly there could be a small marina.

The raw score shows the amount of support for each development item. Scores range from a high of 15.6 for the top ranked item (potable water) to a low of .7 for the lowest ranked item (solar light for toilet). Items 1 through 9 show some minor differences in their raw scores. Items 10 through 34 show very small changes between each item, with no clear breaking point of support. This will make it difficult for management to decide which items to include in the lake development.

DISCUSSION/SUMMARY

Forty percent of the invited groups participated at the northern Arizona meeting. This is significantly higher than the participation rate for normal district projects, which the author estimates to be approximately ten percent of both individuals and groups. It does affect the results by limiting the number of user groups involved. However, each user group that did participate represents the entire membership of that group, which can range from 20-100+ people.

Twenty-one percent of the invited groups participated at the southern Arizona meeting (thirty-two percent if the two groups which submitted comments but did not attend the meeting are included). This rate is also significantly higher than the participation rate for normal district projects. The effect of only some groups participating has the same effect as described above for northern Arizona. However, the information obtained from this meeting is very important, because residents of southern Arizona are major users of recreational facilities on the Kaibab National Forest. Due to the distance from Williams to Phoenix, these user groups are difficult to reach with our traditional public involvement methods. The media in Phoenix do not always consider Forest Service news releases from northern Arizona newsworthy. As a result attempts to reach the public in southern Arizona are not always as successful as desired.

The combined participation rate for the two meetings was twenty-nine percent of the invited groups.

The different rankings from the northern and southern Arizona meetings is similar to what McCool (1978) described for residents and non-residents of Utah. McCool found that residents preferred activities not necessarily dependent on a forest environment, such as fishing, boating and swimming. Non-residents preferred activities directed towards appreciation of the natural environment, such as hiking and backpacking. In this case, the more local group from northern Arizona placed more emphasis on fishing, boating and swimming. The group from southern Arizona was more interested in camping in a natural setting, picnicking and hiking.

While the northern and southern groups are interested in different facilities at a new lake, their desires are not mutually exclusive. The top ranked facilities from the northern Arizona meeting are compatible with the top ranked facilities from the southern Arizona meeting. A common desire from both meeting was to keep the facilities rustic. Doing this would help satisfy most user groups.

The combined results of both meetings show a desire for camping, picnicking, fishing and boating. These activities are consistent with information presented in the Arizona State Parks SCORP (1989). The emphasis on rustic or primitive facilities is, however, somewhat surprising. Some literature shows a trend towards a desire for more developed facilities. Other data, such as the 1991 Arizona watercraft study, show strong demand for basic facilities rather than a higher level of amenities. The results of this project shows there is still a strong desire on the part of some publics in Arizona for a traditional, less developed Forest Service recreational facility.

RECOMMENDATIONS

The next step in the process is to obtain water rights for the lake. If, for some reason, the current negotiations and work on water rights is unsuccessful, the project will terminate. If the project terminates, the information presented in this report will not be directly used in creating a proposal for a new lake, but instead will be helpful when the Forest Service evaluates changes at other recreational lakes.

If water rights are obtained, the Forest Service will need to formulate a proposal. Because of the number of options that are possible with a new recreational facility, the information presented in this report will aid the Forest Service in selecting a level of development for the initial proposal.

Using the information presented in this report, the proposal should focus on rustic or primitive camping, picnicking, fishing, boating and hiking trails. After defining a proposal, extensive public involvement would begin. This would be accomplished with direct mailings to people on the district's mailing list, as well as news releases, notices in other recreational facilities, and flyers placed at sporting goods stores. A special emphasis would be made to contact people in the Phoenix area. After public involvement, an environmental analysis would be conducted. A decision whether to implement the proposal or not would be made based on the analysis.

LITERATURE CITED

Arizona State Parks. "Arizona Lakes Study". Phoenix: Arizona State Parks, 1989.

Arizona State Parks. "Arizona Rivers, Streams and Wetlands Study". Phoenix: Arizona State Parks, 1989.

Arizona State Parks. "Arizona State Lake Improvement Fund Futures Assessment". Workshop materials and findings. Phoenix: Arizona State Parks, March 1992.

Arizona State Parks. "Statewide Comprehensive Outdoor Recreation Plan (SCORP)". Phoenix: Arizona State Parks, 1989.

Behavior Research Center. "Arizona Watercraft Survey". Phoenix: Prepared for Arizona Department of Transportation, Arizona Game and Fish, and Arizona State Parks Board. Volume II (technical report). July 1991.

Brooks, Ralph H. "Public Participation in Planning for Management of Public Waters: Letting Lake Users Have a Say - and Listening". Phoenix, AZ.: Proceedings from Warmwater Fisheries Symposium I. 1991.

Cordell. H. K., and Sykes, C. K. "User Preferences for Developed Site Camping". Asheville, NC: USDA Forest Service Research Note SE-122, Southeast Forest Experiment Station. 6 pp. 1969.

Douglass, Robert W. Forest Recreation. New York City,: Pergamon Press Inc, 1978.

Field, D. R. and Cheek, N. H. Jr. "A Basis for Assessing Differential Participation in Water-Based Recreation". Water Resources Bulletin, 10:1218-1227. 1974.

Forbis, Larry A. "The Sagurao Lake Project: Doing It Right". Phoenix, AZ.: Preceedings from Warmwater Fisheries Symposium I. 1991.

Kaplan, Rachel. "Down by the Riverside: Informational Factors in Waterscape Preference". Minneapolis, MN.: Proceedings from Symposium on River Recreation Management and Research. 1977.

Kight, Don K. "Providing a Diverse Opportunity Spectrum on Laurel River Lake". Paper presented for Clemson Outdoor Recreation Management Short Course. Clemson University, Clemson, SC. 1979.

King, John Morgan Jr. "A Comparison of Attitudes Towards Public Camping in State and Federal Outdoor Recreation Areas". PhD Thesis, University of Indiana, Indiana. 1970.

Knetsch, Jack L. Outdoor Recreation and Water Resource Planning. Washington, D.C.: American Geophysical Union, 1974.

Market Opinion Research Survey, Inc. "Participation in Outdoor Recreation Among American Adults and the Motivation Which Drives Participation". (citation incomplete - partial study results given to the Clemson University Recreation Short Course participants, 1992, by George Siehl of the Congressional Research Service, Library of Congress). 1986.

McCool, Stephen F. "Recreation Activity Packages at Water-Based Resources". Leisure Sciences, Volume 1, Number 2. 1978.

McEwen, Douglas and Paterson, Richard. "The Move to Marketing: Land Between the Lakes". Parks and Recreation, November 1986.

Munson, Karl. "Opinions of Providers and Users about Site Quality for Water Oriented Recreation on Eight Small Lakes in Arkansas". PhD Thesis, University of Illinos, Urbana, Ill. 1968.

Northern Arizona Council of Governments. "Fredonia Area Recreation Study". Flagstaff, AZ.: Northern Arizona Council of Governments, 1974.

Northern Arizona Council of Governments. "Overall Economic Development Program - Final Draft". Flagstaff, AZ.: Northern Arizona Council of Governments, 1993.

Potter, Loren D., Gosz, James D., and Carlson, Clarence A. Water Resources in the Southern Rockies and High Plains. Albuquerque, NM.: University of New Mexico Press, 1984.

Richards, Merton T., and Brown, Thomas C. "Economic Value of Campground Visits in Arizona". Fort Collins, CO: Research Paper RM-305, Rocky Mountain Forest and Range Experiment Station. 1992.

Stech, Ernest and Ratliffe, Sharon A. Working in Groups - A Communications Manual for Leaders and Participants in Task-Oriented Groups. Skokie, IL.: National Textbook Company, pp 169-173. 1979.

USDA Forest Service, Kaibab National Forest. "Kaibab National Forest Plan". Williams, AZ. 1988.

USDA Forest Service, Kaibab National Forest. "White Horse Lake Environmental Assessment". Williams Ranger District, Williams, AZ. 1992.

US Park Service, Rocky Mountain Region. "Environmental Assessment and Management/Development Concept Plans for Lake Powell's Accessible Shorelines". Denver, CO. 1988.

Virden, Randy J. and Yoshioka, Carlton F. "The 1992 Arizona Outdoor Recreation Needs Survey - Final Report". Arizona State University. Prepared for Arizona State Parks. Tempe, AZ. May 1992.

Wilson, George T. Lake Zoning for Recreation. Wheeling, WV.: American Institute of Park Executives, Inc. 1964.

Wise, Charles. "User Preference of Policy Alternatives: The Case of Recreational User Attitudes Towards Development and Regulation at Lake Monroe, Indiana". School of Public and Environmental Affairs, Occasional Papers No. 4, Indiana University, Bloomington, Indiana. January 1975.

APPENDIX

Appendix A - List of Groups or Organizations Invited to Participate:

Groups or Organizations Invited to the Meeting in Williams:

National Forest Recreation Association
Ash Fork Committee on Tourism
Northern Arizona Flycasters
Coconino Sportsmen
Yavapai Trails Association
Izaak Walton League
Sierra Club
City of Williams Parks and Recreation Commission
Northern Arizona Audubon Society
Arizona Game and Fish
Prescott Audubon Society
Prescott Saddle Club
High Country Whips
Flagstaff Hiking Club
Northern Arizona University Hiking Club

Groups or Organizations Invited to the Meeting in Phoenix:

National Campers and Hikers Association
Skyliners Hiking Club
Campground Owners Association
Mountain Bike Association of Arizona
Cochise County Sportsmen
Phoenix Sportsmen's Association
Southern Arizona Hiking Club
Y-Trekkers
Scottsdale Sportsmen's Club
Scottsdale Sea and Ski Club
Northern Arizona Outdoor and Travel Club
Arizona State Horsemen's Association
Ducks Unlimited
Cochise Conservation Council
Sun City Sportsmen Club
Arizona Wildlife Federation
Arizona Hiking and Equestrian Trails
American Fisheries Society
Arizona State Parks

Appendix B - Groups or Organizations Who Participated

Williams Meeting:

Ash Fork Chamber of Commerce
Ash Fork Development Association
Arizona Game and Fish
Northern Arizona Flycasters
City of Williams Parks and Recreation Commission
Campground Owners Association

Phoenix Meeting:

National Campers and Hikers Association
Scottsdale Sportsmen Club
Arizona State Parks
Arizona Travel Parks Association

Submitted Comments but did not Attend a Meeting:

Skyliners Hiking Club
American Fisheries Society